What is claimed is

1. A method of detecting inflammation in a subject, comprising: (a) administering to said subject a vector, said vector comprising a reporter nucleic acid operably linked to a promoter nucleic acid, wherein said reporter nucleic acid is expressed under conditions of inflammation; and (b) detecting expression of said reporter nucleic acid by *in vivo* monitoring, expression of the reporter nucleic acid indicating inflammation.

2. The method of claim 1, wherein said vector is an adenovirus vector.

3. The method of claim 1, wherein said promoter nucleic acid is selected from the group consisting of a cox2L promoter and a cox2M promoter.

4. The method of claim 1, wherein the reporter nucleic acid encodes a light emitting protein.

5. The method of claim 4, wherein the light emitting protein is luciferase.

6. The method of claim 1, wherein the reporter nucleic acid encodes a fluorescent protein.

7. The method of claim 6, wherein the fluorescent protein is GFP.

8. The method of claim 6, wherein the fluorescent protein is RFP.

9. The method of claim 1, wherein the reporter nucleic acid encodes hSSTr2.

10. The method of claim 1, wherein the reporter nucleic acid is detectable by gamma ray imaging.

11. The method of claim 1, wherein the reporter nucleic acid encodes thymidine kinase (TK).

12. The method of claim 1, wherein the vector further comprises a complement modulator.

13. The method of claim 12, wherein the complement modulator inhibits complement

activation.

14. The method of claim 13, wherein the complement inhibitor is SCR 13-15

15. The method of claim 13, wherein the complement inhibitor is Crry.

16. The method of claim 1, wherein expression of said reporter nucleic acid is detected by a labeled ligand for a polypeptide encoded by the reporter nucleic acid.

17. The method of claim 1, wherein said inflammation is associated with hepatitis.

18. The method of claim 1, wherein said inflammation is associated with lung inflammation.

19. The method of claim 1, wherein said inflammation is associated with an infectious process.

20. The method of claim 19, wherein the infectious process is a viral infection selected from the group consisting of Herpes simplex virus type-1, Herpes simplex virus type-2, Cytomegalovirus, Epstein-Barr virus, Varicella-zoster virus, Human herpesvirus 6, Human herpesvirus 7, Human herpesvirus 8, Variola virus, Vesicular stomatitis virus, Hepatitis A virus, Hepatitis B virus, Hepatitis C virus, Hepatitis D virus, Hepatitis E virus, Rhinovirus, Coronavirus, Influenza virus A, Influenza virus B, Measles virus, Polyomavirus, Human Papilomavirus, Respiratory syncytial virus, Adenovirus, Coxsackie virus, Dengue virus, Mumps virus, Poliovirus, Rabies virus, Rous sarcoma virus, Yellow fever virus, Ebola virus, Marburg virus, Lassa fever virus, Eastern Equine Encephalitis virus, Japanese Encephalitis virus, St. Louis Encephalitis virus, Murray Valley fever virus, West Nile virus, Rift Valley fever virus, Rotavirus A, Rotavirus B, Rotavirus C, Sindbis virus, Simian Immunodeficiency cirus, Human T-cell Leukemia virus type-1, Hantavirus, Rubella virus, Simian Immunodeficiency virus, Human Immunodeficiency virus type-1, and Human Immunodeficiency virus type-2..

21. The method of claim 19, wherein the infectious process is a bacterial infection selected from the group consisting of *M. tuberculosis, M. bovis, M. bovis* strain BCG, BCG substrains, *M. avium, M. intracellulare, M. africanum, M. kansasii, M. marinum, M. ulcerans, M. avium* subspecies *paratuberculosis, Nocardia asteroides*, other *Nocardia* species, *Legionella*

pneumophila, other *Legionella* species, *Salmonella typhi,* other *Salmonella* species, *Shigella* species, *Yersinia pestis, Pasteurella haemolytica, Pasteurella multocida,* other *Pasteurella species, Actinobacillus pleuropneumoniae, Listeria monocytogenes, Listeria ivanovii, Brucella abortus,* other *Brucella* species, *Cowdria ruminantium, Chlamydia pneumoniae, Chlamydia trachomatis, Chlamydia psittaci, Coxiella burnetti,* other *Rickettsial* species, *Ehrlichia* species, *Staphylococcus aureus, Staphylococcus epidermidis, Streptococcus pyogenes, Streptococcus agalactiae, Bacillus anthracis, Escherichia coli, Vibrio cholerae, Campylobacter* species, *Neiserria meningitidis, Neiserria gonorrhea, Pseudomonas aeruginosa,* other *Pseudomonas* species, *Haemophilus influenzae, Haemophilus ducreyi,* other *Hemophilus species, Clostridium tetani,* other *Clostridium* species, *Yersinia enterolitica, and* other *Yersinia species*..

22. The method of claim 19, wherein the infectious process is a parasitic infection selected from the group consisting of *Toxoplasma gondii, Plasmodium, Trypanosoma brucei, Trypanosoma cruzi, Leishmania, Schistosoma,* and *Entamoeba histolytica.*

23. The method of claim 19, wherein the infectious process is a fungal infection selected from the group consisting of *Candida albicans, Cryptococcus neoformans, Histoplama capsulatum, Aspergillus fumigatus, Coccidiodes immitis, Paracoccidiodes brasiliensis, Blastomyces dermitidis, Pneomocystis carnii, Penicillium marneffi, and Alternaria alternata.*

24. The method of claim 1, wherein said inflammation is associated with liver toxicity.

25. The method of claim 24, wherein said liver toxicity is associated with cancer therapy.

26. The method of claim 25, wherein said cancer therapy is apoptosis induction.

27. The method of claim 25, wherein said cancer therapy is chemotherapy.

28. The method of claim 25, wherein said cancer therapy is a combination of chemotherapy and apoptosis induction.

29. The method of claim 1, wherein the inflammation is associated with an inflammatory disease.

30. The method of claim 29, wherein the inflammatory disease is selected from the group consisting of asthma, systemic lupus erythematosus, rheumatoid arthritis, reactive arthritis, spondyarthritis, systemic vasculitis, insulin dependent diabetes mellitus, multiple sclerosis, experimental allergic encephalomyelitis, Sjögren's syndrome, graft versus host disease, inflammatory bowel disease, ulcerative colitis, and scleroderma.

31. The method of claim 1, wherein the inflammation is associated with cancer.

32. The method of claim 31, wherein the cancer can be selected from the group consisting of lymphoma, leukemia, mycosis fungoide, carcinoma, adenocarcinoma, sarcoma, glioma, blastoma, neuroblastoma, plasmacytoma, histiocytoma, melanoma, adenoma, hypoxic tumour, myeloma, AIDS-related lymphoma or AIDS-related sarcoma, metastatic cancer, bladder cancer, brain cancer, nervous system cancer, glioblastoma, ovarian cancer, skin cancer, liver cancer, squamous cell carcinomas of the mouth, throat, larynx, and lung, colon cancer, cervical cancer, breast cancer, epithelial cancer, renal cancer, genitourinary cancer, pulmonary cancer, esophageal carcinoma, head and neck carcinoma, hematopoietic cancer, testicular cancer, colo-rectal cancer, prostatic cancer, and pancreatic cancer.

33. The method of claim 1, wherein the detection step comprises identifying activated cells at the site of inflammation.

34. The method of claim 1, wherein the inflammation is associated with transplant rejection.

35. The method of claim 1, wherein said *in vivo* monitoring is selected from the group consisting of bioluminescence imaging, gamma-ray irradiation, light-based imaging, magnetic resonance spectroscopy, and somatostatin receptor imaging.

36. The method of claim 1, wherein the vector further comprises a nucleic acid that encodes a detectable secreted protein.

37. The method of claim 36, wherein the detectable secreted protein is SEAP.

38. The method of claim 36, wherein expressing the reporter nucleic acid is detected by detecting the secreted protein.

39. The method of claim 1, wherein the subject is a transplant recipient.

40. A method of detecting inflammation in a transplant recipient comprising: (a) administering to cells of the transplant, prior to transplantation, a vector, said vector comprising a reporter nucleic acid and a promoter nucleic acid, wherein expression of said reporter nucleic acid is detectable under conditions of inflammation; (b) performing the transplant; and (c) detecting expression of said reporter nucleic acid by *in vivo* monitoring.

41. The method of claim 40, wherein said transplantation is organ transplantation.

42. The method of claim 41, wherein said organ transplantation is transplantation of the liver.

43. The method of claim 41, wherein said organ transplantation is transplantation of the kidney.

44. The method of claim 40, wherein said vector is an adenovirus vector.

45. The method of claim 40, wherein the vector further comprises a complement modulator.

46. The method of claim 45, wherein the complement modulator inhibits complement activation.

47. The method of claim 46, wherein the complement inhibitor is SCR 13-15.

48. The method of claim 46, wherein the complement inhibitor is Crry.

49. The method of claim 40, wherein said promoter nucleic acid is selected from the group consisting of a cox2L promoter and a cox2M promoter.

50. The method of claim 40, wherein the reporter nucleic acid encodes a light emitting protein.

51. The method of claim 50, wherein the light emitting protein is luciferase.

52. The method of claim 40, wherein the reporter nucleic acid encodes a fluorescent protein.

53. The method of claim 52, wherein the fluorescent protein is GFP.

54. The method of claim 52, wherein the fluorescent protein is RFP.

55. The method of claim 40, wherein the reporter nucleic acid encodes hSSTr2.

56. The method of claim 40, wherein the reporter nucleic acid is detectable by gamma ray imaging.

57. The method of claim 40, wherein the reporter nucleic acid encodes thymidine kinase (TK).

58. The method of claim 40, wherein expression of said reporter nucleic acid is detected by a labeled ligand for a polypeptide encoded by the reporter nucleic acid.

59. The method of claim 40, wherein said inflammation is associated with hepatitis.

60. The method of claim 40, wherein said inflammation is associated with lung inflammation.

61. The method of claim 40, wherein said inflammation is associated with an infectious process.

62. The method of claim 40, wherein the detection step comprises identifying activated cells at the site of inflammation.

63. The method of claim 40, wherein the inflammation is associated with transplant rejection.

64. The method of claim 40, wherein said *in vivo* monitoring is selected from the group consisting of bioluminescence imaging, gamma-ray irradiation, light-based imaging, magnetic resonance spectroscopy, and somatostatin receptor imaging.

65. The method of claim 40, wherein the vector further comprises a nucleic acid that encodes a detectable secreted protein.

66. The method of claim 65, wherein the detectable secreted protein is SEAP.

67. The method of claim 65, wherein expression of the reporter nucleic acid is detected by detecting the secreted protein.

68. A method of monitoring inflammation in a subject with an inflammatory or autoimmune disease, comprising: (a) administering to said subject a vector, said vector comprising a reporter nucleic acid operably linked to a promoter nucleic acid, wherein expression of said reporter nucleic acid is detectable under conditions of inflammation; and (b) detecting expression of said reporter nucleic acid by *in vivo* monitoring.

69. The method of claim 68, wherein the vector further comprises a complement modulator.

70. The method of claim 69, wherein the complement modulator inhibits complement activation.

71. The method of claim 70, wherein the complement inhibitor is SCR 13-15.

72. The method of claim 70, wherein the complement inhibitor is Crry.

73. The method of claim 68, wherein said vector is an adenovirus vector.

74. The method of claim 68, wherein said promoter nucleic acid is selected from the group consisting of a cox2L promoter and a cox2M promoter.

75. The method of claim 68, wherein the reporter nucleic acid encodes a light emitting protein.

76. The method of claim 75, wherein the light emitting protein is luciferase.

77. The method of claim 68, wherein the reporter nucleic acid encodes a fluorescent protein.

78. The method of claim 77, wherein the fluorescent protein is GFP.

79. The method of claim 77, wherein the fluorescent protein is RFP.

80. The method of claim 68, wherein the reporter nucleic acid encodes hSSTr2.

81. The method of claim 68, wherein the reporter nucleic acid is detectable by gamma ray imaging.

82. The method of claim 68, wherein the reporter nucleic acid encodes thymidine kinase (TK).

83. The method of claim 68, wherein expression of said reporter nucleic acid is detected by a labeled ligand for a polypeptide encoded by the reporter nucleic acid.

84. The method of claim 68, wherein the inflammatory disease can be selected from the group inflammatory diseases consisting of asthma, systemic lupus erythematosus, rheumatoid arthritis, reactive arthritis, spondyarthritis, systemic vasculitis, insulin dependent diabetes mellitus, multiple sclerosis, experimental allergic encephalomyelitis, Sjögren's syndrome, graft versus host disease, inflammatory bowel disease including Crohn's disease, ulcerative colitis, and scleroderma.

85. The method of claim 68, wherein the inflammation is associated with cancer.

86. The method of claim 85, wherein the cancer can be selected from the group consisting of lymphomas (Hodgkins and non-Hodgkins), B cell lymphoma, T cell lymphoma, myeloid leukemia, leukemias, mycosis fungoides, carcinomas, carcinomas of solid tissues, squamous cell carcinomas, adenocarcinomas, sarcomas, gliomas, blastomas, neuroblastomas, plasmacytomas, histiocytomas, melanomas, adenomas, hypoxic tumours, myelomas, AIDS-related lymphomas or sarcomas, metastatic cancers, bladder cancer, brain cancer, nervous system cancer, squamous cell carcinoma of head and neck, neuroblastoma/glioblastoma, ovarian cancer, skin cancer, liver cancer, melanoma, squamous cell carcinomas of the mouth, throat, larynx, and lung, colon cancer, cervical cancer, cervical carcinoma, breast cancer, epithelial cancer, renal cancer,

genitourinary cancer, pulmonary cancer, esophageal carcinoma, head and neck carcinoma, hematopoietic cancers, testicular cancer, colo-rectal cancers, prostatic cancer, or pancreatic cancer.

87. The method of claim 68, wherein the detection step comprises identifying activated cells at the site of inflammation.

88. The method of claim 68, wherein said *in vivo* monitoring is selected from the group consisting of bioluminescence imaging, gamma-ray irradiation, light-based imaging, magnetic resonance spectroscopy, and somatostatin receptor imaging.

89. The method of claim 68, wherein the vector further comprises a nucleic acid that encodes a detectable secreted protein.

90. The method of claim 89, wherein the detectable secreted protein is SEAP.

91. The method of claim 89, further comprising determining the activation status of the promoter by detecting the secreted protein.

92. A method of identifying a vector capable of detecting inflammation, comprising: (a) administering a vector to a cell culture, wherein the vector comprises a promoter nucleic acid and a reporter nucleic acid; (b) inducing an inflammatory response in said cell culture; and (c) monitoring expression of the reporter nucleic acid, expression indicating a vector capable of detecting inflammation.

93. The method of claim 92, wherein said promoter nucleic acid is selected from the group consisting of a cox2L promoter and a cox2M promoter.

94. The method of claim 92, wherein the reporter nucleic acid encodes a light emitting protein.

95. The method of claim 94, wherein the light emitting protein is luciferase.

96. The method of claim 92, wherein the reporter nucleic acid encodes a fluorescent protein.

97. The method of claim 96, wherein the fluorescent protein is GFP.

98. The method of claim 96, wherein the fluorescent protein is RFP.

99. The method of claim 92, wherein the reporter nucleic acid encodes hSSTr2.

100. The method of claim 92, wherein the reporter nucleic acid is detectable by gamma ray imaging.

101. The method of claim 92, wherein the reporter nucleic acid encodes thymidine kinase (TK).

102. The method of claim 92, wherein expression of said reporter nucleic acid is detected by a labeled ligand for a polypeptide encoded by the reporter nucleic acid.

103. The method of claim 92, wherein the vector further comprises a nucleic acid that encodes a detectable secreted protein.

104. The method of claim 103, wherein the detectable secreted protein is SEAP.

105. The method of claim 103, wherein expression of the reporter nucleic acid is detected by detecting the secreted protein.

106. A method of treating a subject with an inflammatory disease comprising: (a) administering to said subject a vector, said vector comprising a reporter nucleic acid operably linked to a promoter nucleic acid, wherein said reporter nucleic acid is expressed under conditions of inflammation; (b) detecting expression of said reporter nucleic acid by *in vivo* monitoring; and (c) modifying treatment of the subject when expression of said reporter nucleic acid is detected.

107. The method of claim 106, wherein said vector is an adenovirus vector.

108. The method of claim 106, wherein said promoter nucleic acid is selected from the group consisting of a cox2L promoter and a cox2M promoter.

109. The method of claim 106, wherein the reporter nucleic acid encodes a light emitting protein.

110. The method of claim 106, wherein the light emitting protein is luciferase.

111. The method of claim 106, wherein the reporter nucleic acid encodes a fluorescent protein.

112. The method of claim 111, wherein the fluorescent protein is GFP.

113. The method of claim 111, wherein the fluorescent protein is RFP.

114. The method of claim 106, wherein the reporter nucleic acid encodes hSSTr2.

115. The method of claim 106, wherein the reporter nucleic acid is detectable by gamma ray imaging.

116. The method of claim 106, wherein the vector further comprises a complement modulator.

117. The method of claim 116, wherein the complement modulator inhibits complement activation.

118. The method of claim 117, wherein the complement inhibitor is SCR 13-15.

119. The method of claim 117, wherein the complement inhibitor is Crry.

120. The method of claim 106, wherein the reporter nucleic acid encodes thymidine kinase (TK).

121. The method of claim 106, wherein expression of said reporter nucleic acid is detected by a labeled ligand for a polypeptide encoded by the reporter nucleic acid.

122. The method of claim 106, wherein the inflammation is associated with an inflammatory disease.

123. The method of claim 122, wherein the inflammatory disease can be selected from the group inflammatory diseases consisting of asthma, systemic lupus erythematosus, rheumatoid arthritis, reactive arthritis, spondyarthritis, systemic vasculitis, insulin dependent diabetes mellitus, multiple sclerosis, experimental allergic encephalomyelitis, Sjögren's syndrome, graft versus host disease, inflammatory bowel disease, ulcerative colitis, and scleroderma.

124. A method of reducing inflammation in a subject, comprising delivering to the subject a complement modulator.

125. The method of claim 124, wherein the complement modulator inhibits complement activation.

126. The method of claim 125, wherein the complement inhibitor is SCR 13-15.

127. The method of claim 126, wherein the complement inhibitor is Crry.

128. A transgenic animal, wherein the animal comprises a reporter nucleic acid operably linked to a promoter nucleic acid, wherein said reporter nucleic acid is expressed under conditions of inflammation.

129. A cell line comprising a vector, said vector comprising a reporter nucleic acid operably linked to a promoter nucleic acid, wherein said reporter nucleic acid is expressed under conditions of inflammation.

130. The method of claim 124, wherein a vector comprising SEQ ID NO: 8 is administered to the subject.

131. The method of claim 130, wherein the vector is inserted into HVR2 region of an adenovirus vector.

132. The method of claim 130, wherein the vector is inserted into HVR5 region of an adenovirus vector.

133. A nucleic acid comprising a nucleotide sequence that encodes at least two repeats of ED1 and a linker.

134. The method of claim 130, wherein the vector is inserted into any HVR region.

135. The nucleic acid sequence of claim 133, wherein the nucleotide sequence further encodes a His-tag.

136. The nucleic acid of claim 133, wherein the nucleotide sequence encodes SEQ ID NO: 9.

137. A nucleic acid comprising a nucleotide sequence at least 80% identical to of SEQ ID NO: 8.

138. The nucleic acid sequence of claim 137, wherein the nucleotide sequence at least 85% identical to of SEQ ID NO: 8.

139. The nucleic acid sequence of claim 137, wherein the nucleotide sequence at least 90% identical to of SEQ ID NO: 8.

140. The nucleic acid sequence of claim 137, wherein the nucleotide sequence at least 95% identical to of SEQ ID NO: 8.

141. A nucleic acid comprising the nucleotide sequence of SEQ ID NO: 8.

142. A vector comprising the nucleic acid of claim 133 operably linked to an expression control sequence.

143. The vector of claim 142, wherein the vector is a viral vector and wherein the nucleic acid is inserted in a hypervariable region of the viral genome.

144. The vector of claim 143, wherein the vector is an adenoviral vector.

145. The vector of claim 143, wherein the vector is an AAV.

146. A vector comprising the nucleic acid of claim 141 operably linked to an expression control sequence.

147. The vector of claim 146, wherein the vector is a viral vector and wherein the nucleic acid is inserted in a hypervariable region of the viral genome.

148. The vector of claim 147, wherein the vector is an adenoviral vector.

149. The vector of claim 147, wherein the vector is an AAV.

150. A polypeptide encoded by the nucleic acid sequence of claim 133.

151. A vector comprising the polypeptide of claim 150, wherein the polypeptide is on the vector surface.